

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application.  
Please cancel claim 9 without prejudice.

**Listing of Claims:**

1. (Currently Amended) A nanoparticle processed textile and polymer system, said nanoparticle processed textile and polymer system comprising:  
a textile material having an embedded nanoparticle, wherein said nanoparticle is an inorganic nanoparticle or carbon-black.
2. (Original) The nanoparticle processed textile and polymer system of claim 1, wherein said textile material is a member selected from the group consisting of fabric, yarn and fiber.
3. (Original) The nanoparticle processed textile and polymer system of claim 1, wherein said textile material is a member selected from the group consisting of cellulose, cotton, linen, hemp, jute, ramie, wool, mohair, vicuna, silk, rayon, local, acetate, triacetate, along, acrylic, agamid, nylon, olefin, polyester, spandex, Vinson, venal, graphite, metallic textiles, ceramic textiles and mixtures thereof.
4. (Original) The nanoparticle processed textile and polymer system of claim 2, wherein said textile material is a fabric selected from the group consisting of cellulose, cellulose-synthetic blend, and synthetic material.
5. (Original) The nanoparticle processed textile and polymer system of claim 4, wherein said textile material is cellulose.
6. (Original) The nanoparticle processed textile and polymer system of claim 5, wherein said cellulose material is fabricated into a member selected from the group consisting of a diaper, napkin, a table cloth, a bandage, a gauze, an underpants, a medical

garment, a surgeon's gown, a cap, a mask, a surgical cover, a patient drape, a carpeting, a bedding material, an underwear, a sock, and a uniform.

7. (Original) The nanoparticle processed textile and polymer system of claim 4, wherein said textile material is a synthetic polymer selected from the group consisting of PET, acrylic and nylon.

8. (Original) The nanoparticle processed textile and polymer system of claim 1, wherein the size of said nanoparticle is about  $10^{-9}$ m to about  $10^{-7}$ m.

9. (Canceled)

10. (Currently Amended) The nanoparticle processed textile and polymer system of claim 1 [9], wherein said inorganic nanoparticle is a metal oxide.

11. (Original) The nanoparticle processed textile and polymer system of claim 10, wherein said metal oxide is selected from the group consisting of  $\text{Fe}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{Ag}_2\text{O}$ , and  $\text{CuO}$ .

12. (Currently Amended) The nanoparticle processed textile and polymer system of claim 1 [9], wherein said inorganic nanoparticle is a metal.

13. (Original) The nanoparticle processed textile and polymer system of claim 12, wherein said metal is selected from the group consisting Ag, Cu, Fe, and Zn.

14. (Currently Amended) The nanoparticle processed textile and polymer system of claim 1 [9], wherein said nanoparticle is a carbon-black nanoparticle.

15. (Original) The nanoparticle processed textile and polymer system of claim 1, wherein said embedded nanoparticle imparts a functionality selected from the group consisting of coloration, a waterproof finishing, soil repellent finishing, fire resistance finishing, wrinkle free finishing, anti-UV finishing, antimicrobial finishing and antistatic finishing.

16. (Original) A nanoparticle formulation for textiles, said formulation comprising:

a nanoparticle;  
a dispersant; and  
optionally a thickener.

17. (Original) The nanoparticle formulation for textiles of claim 16, wherein said nanoparticle is selected from the group consisting of an organic nanoparticle and an inorganic nanoparticle.

18. (Original) The nanoparticle formulation for textiles of claim 16, wherein said nanoparticle is a carbon-black nanoparticle.

19. (Original) The nanoparticle formulation for textiles of claim 16, wherein said dispersant is selected from an anionic surfactant, a cationic surfactant, a nonionic surfactant, and a zwitterionic surfactant.

20. (Original) The nanoparticle formulation for textiles of claim 16, wherein said dispersant is a polymeric dispersant selected from the group consisting of a polyacrylic acid and salt thereof.

21. (Original) The nanoparticle formulation for textiles of claim 16, wherein said polyacrylic salt is selected from the group consisting of polyacrylate, polyethylenimine, oxo alcohol, and copolymeric carboxylate.

22. (Original) The nanoparticle formulation for textiles of claim 16, further comprising a thickener.

23. (Original) The nanoparticle formulation for textiles of claim 16, wherein said thickener is selected from the group consisting of starch, modified starch, modified cellulose, polyvinyl acetate, polyvinyl alcohol, polyethylene glycol, polyacrylates, silicones and copolymers of vinyl polymers.

24. (Original) A method for making a nanoparticle processed polymer composition, said method comprising:

diffusing a nanoparticle into a polymer matrix to form an embedded nanoparticle in said polymer matrix, thereby making said nanoparticle processed polymer composition.

25. (Original) The method for making a nanoparticle processed polymer composition of claim 24, wherein said nanoparticle diffuses at the glass-transition temperature of said polymer matrix.

26. (Original) The method for making a nanoparticle processed polymer composition of claim 24, wherein the free volume of said polymer matrix is greater in diameter than said nanoparticle.

27. (Original) The method for making a nanoparticle processed polymer composition of claim 24, wherein said polymer matrix is heated to above its glass transition temperature prior to facilitate the diffusion of said nanoparticle.

28. (Original) The method for making a nanoparticle processed polymer composition of claim 24, wherein said polymer matrix is a member selected from the group consisting of polyester, polyamide, polyethylene, polypropylene, polystyrene, polyvinylchloride polyamideimide, polyethersulfone, polyarylsulfone, polyetherimide, polyarylate, polysulfone, polycarbonate, polystyrene, polyetherketone, polyetheretherketone, polytetrafluoroethylene, nylon-6,6, nylon-6,12, nylon-11, nylon-12, acetal resin, and aramid.

29. (Original) The method for making a nanoparticle processed polymer composition of claim 28, wherein said polymer matrix is selected from the group consisting of PET and acrylics.

30. (Original) A method for dyeing a textile having a polymeric matrix, said method comprising:

diffusing a colored nanoparticle into a textile having a polymer matrix to form an embedded colored nanoparticle in said textile having said polymer matrix, thereby dyeing said textile.

31. (Original) The method for dyeing a textile having a polymeric matrix of claim 30, wherein said colored nanoparticle diffuses at the glass-transition temperature of said polymer matrix.

32. (Original) The method for dyeing a textile having a polymeric matrix of claim 30, wherein the free volume of said polymer matrix is greater in diameter than said colored nanoparticle.

33. (Original) The method for dyeing a textile having a polymeric matrix of claim 30, wherein said polymer matrix is heated to above its glass transition temperature prior to facilitate the diffusion of said colored nanoparticle.

34. (Original) The method for dyeing a textile having a polymeric matrix of claim 30, wherein said polymer matrix is a member selected from the group consisting of polyester, polyamide, polyethylene, polypropylene, polystyrene, polyvinylchloride polyamideimide, polyethersulfone, polyarylsulfone, polyetherimide, polyarylate, polysulfone, polycarbonate, polystyrene, polyetherketone, polyetheretherketone, polytetrafluoroethylene, nylon-6,6, nylon-6,12, nylon-11, nylon-12, acetal resin, and aramid.